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The investigation on the impact of financial crisis on bursa malaysia using minimal spanning tree (Article) [\(Open Access\)](#)

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Abstract

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In recent years, there has been a growing interest in financial network. The financial network helps to visualize the complex relationship between stocks traded in the market. This paper investigates the stock market network in Bursa Malaysia during the 2008 global financial crisis. The financial network is based on the top hundred companies listed on Bursa Malaysia. Minimal spanning tree (MST) is employed to construct the financial network and uses cross-correlation as an input. The impact of the global financial crisis on the companies is evaluated using centrality measurements such as degree, betweenness, closeness and eigenvector centrality. The results indicate that there are some changes on the linkages between securities after the financial crisis, that can have some significant effect in investment decision making. © 2019 by authors, all rights reserved.

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-
- ☐ 1 Mantegna, R.N.
Hierarchical structure in financial markets

(1999) *European Physical Journal B*, 11 (1), pp. 193-197. Cited 1005 times.
<http://link.springer.de/link/service/journals/10051/index.htm>
doi: 10.1007/s100510050929

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-
- ☐ 2 Sinha, S., Pan, R.K.
Uncovering the internal structure of the Indian financial market: Large cross-correlation behavior in the NSE
(2007) *Econophysics of Markets and Business Networks*, 66, pp. 3-19. Cited 7 times.
-
- ☐ 3 Tang, Y., Xiong, J.J., Jia, Z.-Y., Zhang, Y.-C.
Complexities in financial network topological dynamics: Modeling of emerging and developed stock markets ([Open Access](#))

(2018) *Complexity*, 2018, art. no. 4680140. Cited 2 times.
<https://www.hindawi.com/journals/complexity/>
doi: 10.1155/2018/4680140

[View at Publisher](#)
-
- ☐ 4 Huang, W.-Q., Zhuang, X.-T., Yao, S.
A network analysis of the Chinese stock market

(2009) *Physica A: Statistical Mechanics and its Applications*, 388 (14), pp. 2956-2964. Cited 176 times.
doi: 10.1016/j.physa.2009.03.028

[View at Publisher](#)
-
- ☐ 5 Zhang, W., Wen, J., Zhu, Y.
Minimal spanning tree analysis of topological structures: The case of Hang Seng Index
(2016) *Iberian Journal of Information System and Technologies*, 7, pp. 145-155.
-
- ☐ 6 Tabak, B.M., Serra, T.R., Cajueiro, D.O.
Topological properties of stock market networks: The case of Brazil

(2010) *Physica A: Statistical Mechanics and its Applications*, 389 (16), pp. 3240-3249. Cited 82 times.
doi: 10.1016/j.physa.2010.04.002

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-
- ☐ 7 Sandoval Jr., L.
A map of the Brazilian stock market

(2012) *Advances in Complex Systems*, 15 (5), art. no. 1250042. Cited 10 times.
doi: 10.1142/S0219525912500427

[View at Publisher](#)
-

-
- ☐ 8 Yee, L.S., Salleh, R.M., Asrah, N.M.
Multidimensional minimal spanning tree: The Bursa Malaysia
(2018) *Journal of Science and Technology*, 10, pp. 136-143.
-
- ☐ 9 Lee, J.W., Nobli, A.
State and Network Structures of Stock Markets Around the Global Financial Crisis
(2018) *Computational Economics*, 51 (2), pp. 195-210. Cited 7 times.
<http://www.springerlink.com/content/0927-7099/>
doi: 10.1007/s10614-017-9672-x

View at Publisher
-
- ☐ 10 Majapa, M., Gossel, S.J.
Topology of the South African stock market network across the 2008 financial crisis
(2016) *Physica A: Statistical Mechanics and its Applications*, 445, pp. 35-47. Cited 21 times.
<http://www.journals.elsevier.com/physica-a-statistical-mechanics-and-its-applications/>
doi: 10.1016/j.physa.2015.10.108

View at Publisher
-
- ☐ 11 Kantar, E., Keskin, M., Deviren, B.
Analysis of the effects of the global financial crisis on the Turkish economy, using hierarchical methods
(2012) *Physica A: Statistical Mechanics and its Applications*, 391 (7), pp. 2342-2352. Cited 31 times.
doi: 10.1016/j.physa.2011.12.014

View at Publisher
-
- ☐ 12 Xia, L., You, D., Jiang, X., Guo, Q.
Comparison between global financial crisis and local stock disaster on top of Chinese stock network
(2018) *Physica A: Statistical Mechanics and its Applications*, 490, pp. 222-230. Cited 16 times.
<http://www.journals.elsevier.com/physica-a-statistical-mechanics-and-its-applications/>
doi: 10.1016/j.physa.2017.08.005

View at Publisher
-
- ☐ 13 Nobli, A., Maeng, S.E., Ha, G.G., Lee, J.W.
Random matrix theory and cross-correlations in global financial indices and local stock market indices
(2013) *Journal of the Korean Physical Society*, 62 (4), pp. 569-574. Cited 25 times.
doi: 10.3938/jkps.62.569

View at Publisher
-
- ☐ 14 Baba, N., Packer, F.
From turmoil to crisis: Dislocations in the FX swap market before and after the failure of Lehman Brothers
(2009) *Journal of International Money and Finance*, 28 (8), pp. 1350-1374. Cited 54 times.
doi: 10.1016/j.jimonfin.2009.08.003

View at Publisher
-

- 15 Bonanno, G., Caldarelli, G., Lillo, F., Miccichè, S., Vandewalle, N., Mantegna, R.N.

Networks of equities in financial markets

(2004) *European Physical Journal B*, 38 (2), pp. 363-371. Cited 217 times.
doi: 10.1140/epjb/e2004-00129-6

[View at Publisher](#)

- 16 Kruskal, J.B.

On the shortest spanning subtree of a graph and the traveling salesman problem ([Open Access](#))

(1956) *Proceedings of the American Mathematical Society*, 7 (1), pp. 48-50. Cited 2711 times.
doi: 10.1090/S0002-9939-1956-0078686-7

[View at Publisher](#)

- 17 Newman, M.E.J.

A measure of betweenness centrality based on random walks

(2005) *Social Networks*, 27 (1), pp. 39-54. Cited 1090 times.
doi: 10.1016/j.socnet.2004.11.009

[View at Publisher](#)

- 18 Wiliński, M., Sienkiewicz, A., Gubiec, T., Kutner, R., Struzik, Z.R.

Structural and topological phase transitions on the German Stock Exchange

(2013) *Physica A: Statistical Mechanics and its Applications*, 392 (23), pp. 5963-5973. Cited 34 times.
doi: 10.1016/j.physa.2013.07.064

[View at Publisher](#)

- 19 Nobi, A., Maeng, S.E., Ha, G.G., Lee, J.W.

Structural changes in the minimal spanning tree and the hierarchical network in the Korean stock market around the global financial crisis

(2015) *Journal of the Korean Physical Society*, 66 (8), pp. 1153-1159. Cited 13 times.
<http://www.springer.com/physics/journal/40042>
doi: 10.3938/jkps.66.1153

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